TYPE I - RENEWABLE ENERGY PROJECTS

Note: Categories I.A, I.B and I.C involve renewable energy technologies that supply electricity, mechanical and thermal energy, respectively, to the user directly. Renewable energy technologies that supply electricity to a grid fall into category I.D.

Follow the link to find General guidance / Abbreviations

I.A.   *Electricity generation by the user*

Technology/measure

1.   This category comprises renewable energy generation units that supply individual households or users with a small amount of electricity. The applicability is limited to households and users that do not have a grid connection. These units include technologies such as solar power, hydropower, wind power, and other technologies that produce electricity all of which is used on-site by the user, such as solar home systems, and wind battery chargers. The renewable generating units may be new or replace existing fossil fuel fired generation. The capacity of these renewable energy generators shall not exceed 15 MW.

2.   Combined heat and power (co-generation) systems are eligible under categories I.C and I.D.

3.   If the unit added has both renewable and non-renewable components (e.g.. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires [non-] renewable biomass and fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.

4.   Project activities adding renewable energy capacity should consider the following cases:
   1) Adding new units;
   2) Replacing old units for more efficient units.
To qualify as a small scale CDM project activity, the aggregate installed capacity after adding the new units (case 1) or of the more efficient units (case 2) should be lower than 15 MW[1].

Boundary

5.   The physical, geographical site of the renewable energy generating unit and the equipment that uses the electricity produced delineates the project boundary.

Baseline

6.   The energy baseline is the fuel consumption of the technology in use or that would have been used in the absence of the project activity. The project participants may use one of the following energy baseline formulae:

   (a)   Option 1:

   $$E_B = S_i(n_i . c_i)/(1 - l)$$

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[1] Ex: 5 MW of new capacity is added to existing 9 MW to make the aggregate capacity of 14 MW which is within the allowed limits for capacity

where:

E_B = annual energy baseline in kWh per year.
S_i = the sum over the group of "i" renewable energy technologies (e.g. residential, rural health center, rural school, mills, water pump for irrigation, etc.) implemented as part of the project.
n_i = number of consumers supplied by installations of the renewable energy technology belonging to the group of "i" renewable energy technologies during the year.
c_i = estimate of average annual individual consumption (in kWh per year) observed in closest grid electricity systems among rural grid connected consumers belonging to the same group of "i" renewable energy technologies. If energy consumption is metered, c_i is the average energy consumed[2] by consumers belonging to the group of "i" renewable energy technologies.
l = average technical distribution losses that would have been observed in diesel powered mini-grids installed by public programmes or distribution companies in isolated areas, expressed as a fraction.[3]

OR

(b)   Option 2:

$$E_B = S_i O_i /(1 - l)$$

where:

E_B = annual energy baseline in kWh per year
S_i = the sum over the group of "i" renewable energy technologies (e.g. solar home systems, solar pumps) implemented as part of the project.
O_i = the estimated annual output of the renewable energy technologies of the group of "i" renewable energy technologies installed (in kWh per year)
l = average technical distribution losses that would have been observed in diesel powered mini-grids installed by public programmes or distribution companies in isolated areas, expressed as a fraction.

OR

(c)   Option 3: A trend adjusted projection of historic fuel consumption is acceptable in situations where an existing technology is replaced.

7.   If the project participants wish to use a different formula to determine E_B, the proposal needs to be accepted in accordance with the modalities for new methodologies for small-scale project activities (see paragraph 2 of the general guidance (section A) above).

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[2] Potential over sizing of the power capacity installed or energy generated by the CDM project activity shall not be reflected in the baseline and emissions reduction calculation. For this reason, the energy value taken into account shall be the energy consumed. It cannot be the electricity output, except if the project participant justifies that it represent a reasonable estimate of the energy that would have been generated by a diesel generator larger than 35 kW and operating with a load factor of at least 50% to provide similar electricity services.

[3] A reasonable default value for distribution losses on low voltage rural distribution grid could be 20%.

8.   The emissions baseline is the energy baseline calculated in accordance with paragraph 4 above times the CO_2 emission coefficient for the fuel displaced. IPCC default values for emission coefficients may be used. A default value 0.9 kg CO_2equ/kWh, which is derived from diesel generation units, may be used. A small-scale project proponent may, with adequate justification use a higher emissions factor from Table I.D.1

9.   In the case of project activities adding renewable energy capacity, if the availability of renewable resources is limited, the impact of a decrease in electricity production from the units installed before the project implementation must be considered.

For the specific case of hydropower plants, this effect could be considered calculating the production of electricity that must be used for emission reduction calculation with the following procedure:

1) To estimate every year during the crediting period, the energy that would have been produced in the same hydrological conditions by the units installed before the project;
2) The electricity production EGy (MWh/ year) that must be considered to calculate emission reductions is calculated with the following formula:

$$EGy = TEy - WTEy$$

where:

TEy = the actual electricity produced in year y in the plant (all units)
WTEy = the electricity that would have been produced by the units installed before the project under the hydrological conditions of year y

Leakage

10.   If the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered.

Monitoring

11.   Monitoring shall consist of:

        (a)   An annual check of all systems or a sample thereof to ensure that they are still operating (other evidence of continuing operation, such as on-going rental/lease payments could be a substitute).

<div align="center">OR</div>

        (b)   Metering the electricity generated by all systems of a sample thereof.

12.   In the case of co-fired and hybrid systems, the amount of fossil fuel input shall be monitored.